Exotic Wood Borer and Bark Beetle
Cerambycidae, Scolytinae, Siricidae
Detection Survey

Wood boring insects are some of the most dramatically destructive invasive species that have been introduced into the forest and urban landscape of the US (e.g. Asian longhorned beetle, emerald ash borer). Some native wood boring insects (e.g. mountain pine beetle) also cause significant damage to Montana's forest resources, but the threat of exotic wood borers is significant for state tourism, recreation, and aesthetic beauty.

The Exotic Wood Borer and Bark Beetle (EWBBB) survey targets primarily three groups of insects; longhorned beetles (Cerambycidae), bark beetles (Scolytinae), and wood wasps (Siricidae). Within these groups more than 20 species are specifically targeted including the Asian longhorned beetle, Japanese pine sawyer, European spruce bark beetle, brown spruce longhorned beetle, and spruce engraver. This survey is conducted using Lindgren Funnel traps baited with various ultra high release (UHR) ethanols, bark beetle pheromones, and pine volatile lures. Funnel traps also have passive flight intercept capabilities, and the resulting trap catches include many native wood boring beetles and a wide range of non-target families. While not specifically target, Lindgren Funnel traps do capture beetles in the family Buprestidae and have the potential to trap exotic buprestids such as the Emerald Ash Borer.

In 2008, sixty-three funnel traps were placed and monitored across the state. Trap sites focused on businesses that import commodities from foreign countries that are often associated with solid wood packaging materials, recreation sites and campgrounds, and high traffic tourism areas.

Rhagium inquisitor (L.) the "Ribbed Pine Borer" and *Asemum striatum* (L.) are two longhorned beetles that are native to Europe but have long been established in North America. Both species are common in Montana conifer forests where they attack decaying conifer trees and are commonly caught in EWBB surveys.

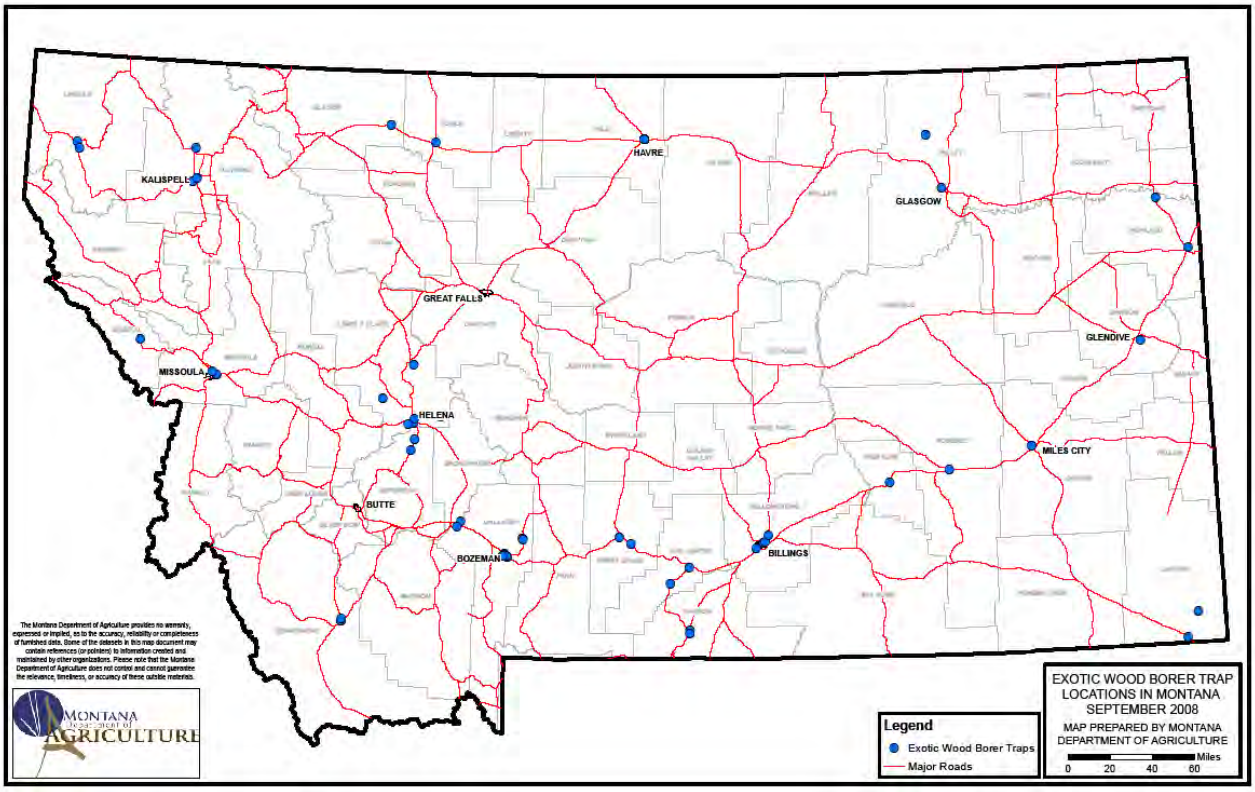
RESULTS: No target species were collected.

Urocerus californicus Norton (left) and *Xeris spectrum* (L.) (right). Images from Guide to the Siricid Woodwasps of North America, Nathan M. Schiff, Steven A. Valley, James R. LaBonte, and David R. Smith.

2008 MDA EXOTIC WOODBORER AND BARK BEETLE TRAPS BY COUNTY			
# of Traps	**County**	**# of Traps**	**County**
2	CARTER	2	CARBON
2	DAWSON	1	SWEETGRASS
6	YELLOWSTONE	1	PARK
1	TOOLE	6	LEWIS AND CLARK
4	FLATHEAD	3	JEFFERSON
1	FERGUS	6	GALLATIN
3	CASCADE	1	BROADWATER
2	CHOUTEAU	2	LINCOLN
2	McCONE	6	MISSOULA
2	RICHLAND	3	BEAVERHEAD
1	CUSTER	1	RAVALLI
1	ROSEBUD	1	MADISON
2	STILLWATER	1	SANDERS
		63	**Total**

The most commonly collected species of Cerambycidae were; *Asemum striatum* (L.), *Arhopalus productus* LeConte, *Monochamus clamator* (LeConte), *Monochamus scutellatus* (Say), *Neoclytus longitarsus* Casey, *Phymatodes dimidiatus* (Kirby), *Spondylis upiformis* Mannerheim, and *Tetropium velutinum* LeConte. The most commonly collected Buprestidae were; *Anthaxia inornata* (Randall), *Phaenops drummondi* (Kirby), *Melanophila acuminata* (De Geer), and *Buprestis maculiventris* Say.

Locations of EWBB traps placed in Montana by MDA



Four native species of Siricidae were trapped in 2008 (two are imaged above); *Urocerus californicus* Norton, *Urocerus albicornis* (F.), *Sirex cyaneus* F., and *Xeris spectrum* (L.).

Many species of scolytid bark beetle were trapped in 2008 including; *Ips pini* (Say), *Ips calligraphus* (Germar), *Hylesinus aculeatus* (Say), *Dendroctonus valens* LeConte, *Dendroctonus ponderosae* Hopkins, *Dendroctonus pseudotsugae* Hopkins *Orthotomicus latidens* (LeConte), *Pityogenes carinulatus* (LeConte), *Hylastes nigrinus* (Mannerheim), and *Hylastes gracilis* (LeConte). Several specimens of scolytid were determined by J. R. LaBonte with the Oregon Dept. of Agriculture.

In addition to the target families, at least 42 other families of beetles were recorded from traps. Those families included; Agyrtidae, Anobiidae, Anthicidae, Anthribidae, Atellabidae, Bostrichidae, Byrrhidae, Cantharidae, Carabidae, Cerylonidae, Chrysomelidae, Clambidae, Cleridae, Coccinellidae, Colydiidae, Cucujidae, Cupedidae, Curculionidae, Dermestidae, Elateridae, Endomychidae, Erotylidae, Histeridae, Hydrophilidae, Laemophloeidae, Latridiidae Leiodidae, Melandryidae, Melyridae, Monotomidae, Mycetophagidae, Nemonychidae, Nitidulidae, Phalacridae, Salpingidae, Scarabaeidae, Scraptiidae, Silphidae, Silvanidae, Staphylinidae, Tenebrionidae, and Trogossitidae.

Non-Target Woodboring Species Collected in 2008		
Family	**Common Name**	**Species**
Cerambycidae	longhorned beetle	*Asemum striatum* (L.)
Cerambycidae	old house borer	*Arhopalus productus* LeConte
Cerambycidae	longhorned beetle	*Centrodera sublineata* LeConte
Cerambycidae	pine sawyer	*Monochamus clamator* (LeConte)
Cerambycidae	pine sawyer	*Monochamus scutellatus* (Say)
Cerambycidae	longhorned beetle	*Oberea* sp.
Cerambycidae	longhorned beetle	*Neoclytus longitarsus* Casey
Cerambycidae	longhorned beetle	*Phymatodes dimidiatus* (Kirby)
Cerambycidae	ribbed pine borer	*Rhagium inquisitor* (L.)
Cerambycidae	longhorned beetle	*Tetropium velutinum* LeConte
Cerambycidae	longhorned beetle	*Xylotrechus undulatus* (Say)
Cerambycidae	longhorned beetle	*Spondylis upiformis* Mannerheim
Cerambycidae	longhorned beetle	*Euderces* sp.
Cerambycidae	longhorned beetle	*Anelaphus* sp.
Buprestidae	metallic wood boring beetle	*Anthaxia inornata* (Randall)
Buprestidae	metallic wood boring beetle	*Phaenops drummondi* (Kirby)
Buprestidae	metallic wood boring beetle	*Melanophila acuminata* (De Geer)
Buprestidae	metallic wood boring beetle	*Buprestis maculiventris* Say
Buprestidae	metallic wood boring beetle	*Agrilus politus* (Say)
Siricidae	woodwasp	*Urocerus californicus* Norton
Siricidae	woodwasp	*Urocerus albicornis* (F.)
Siricidae	blue horntail	*Sirex cyaneus* F.
Siricidae	woodwasp	*Xeris spectrum* (L.)
Curculionidae: Scolytinae	pine engraver	*Ips pini* (Say)
Curculionidae: Scolytinae	six-spined ips	*Ips calligraphus* (Germar)
Curculionidae: Scolytinae	bark beetle	*Ips borealis* Swaine
Curculionidae: Scolytinae	bark beetle	*Ips integer* (Eichhoff)
Curculionidae: Scolytinae	bark beetle	*Orthomicus latidens* (LeConte)
Curculionidae: Scolytinae	emarginate ips	*Ips emarginatus* (LeConte)
Curculionidae: Scolytinae	bark beetle	*Ips grandicollis* (Eichoff)
Curculionidae: Scolytinae	red turpentine beetle	*Dendroctonus valens* LeConte
Curculionidae: Scolytinae	mountain pine beetle	*Dendroctonus ponderosae* Hopkins
Curculionidae: Scolytinae	douglas-fir beetle	*Dendroctonus pseudotsugae* Hopkins
Curculionidae: Scolytinae	bark beetle	*Dryocoetes autographus* (Ratzeburg)
Curculionidae: Scolytinae	bark beetle	*Dryocoetes affaber* (Mannerheim)
Curculionidae: Scolytinae	bark beetle	*Trypodendron lineatum* (Olivier)
Curculionidae: Scolytinae	bark beetle	*Scierus annectans* LeConte
Curculionidae: Scolytinae	bark beetle	*Poityokteinos minutus* (Swaine)
Curculionidae: Scolytinae	bark beetle	*Scolytus unispinosus* LeConte
Curculionidae: Scolytinae	bark beetle	*Hylastes gracilis* LeConte
Curculionidae: Scolytinae	bark beetle	*Hylastes macer* LeConte
Curculionidae: Scolytinae	bark beetle	*Hylastes nigrinus* (Mannerheim)
Curculionidae: Scolytinae	bark beetle	*Hylurgops porosus* (LeConte)
Curculionidae: Scolytinae	bark beetle	*Pityogenes carinulatus* (LeConte)
Curculionidae: Scolytinae	bark beetle	*Pityophthorus* sp.
Curculionidae: Scolytinae	bark beetle	*Gnathotrichus sulcatus* (LeConte)
Curculionidae: Scolytinae	bark beetle	*Hylesinus aculeatus* (Say)

European Pine Shoot Moth (EPSM)
Rhyacoinia buoliana (Denis & Schiffermüller)
Quarantine Support Survey

Montana has had a quarantine for the European pine shoot moth (EPSM) since prior to 1962. This insect is a pest in the production of lumber, nursery trees and Christmas trees that are long-needled pines. Feeding by the larval stage in the growing tips causes death of leaders, resulting in trees with Y-shaped trunks, or other deformities, which are aesthetically unpleasing (lowering value in nursery and Christmas tree trade) or are not usable for major lumber markets due to a need for additional work to salvage merchantable trunks.

Adult European pine shoot moth, www.padil.gov.au

The insect itself is very small. The wingspan of the typical adult is under ¼ inch. However, the adult is very brightly colored, with orange and silver patterning on the wings. There are a number of native pine shoot moths with similar coloration, so identification is dependent on dissection of the male genitalia. The larvae initially feed in the tips of the branches in the new year's growth where they web the needles together for protection. Older larvae move to the needle sheath and mine into individual needles, after which they move on to the needle buds. They overwinter as larvae in the infested branch tips. Larvae emerge to feed again in the spring. This spring feeding is the most damaging, as it involves large larvae feeding on new foliage. The larvae pupate in the needle foliage in the tunnels and webbing they created while feeding. Moths emerge in mid-summer.

Monitoring for the EPSM is done using wing traps and species specific pheromones. These pheromones are attractive to the male moths, but female moths can also be caught in the traps.

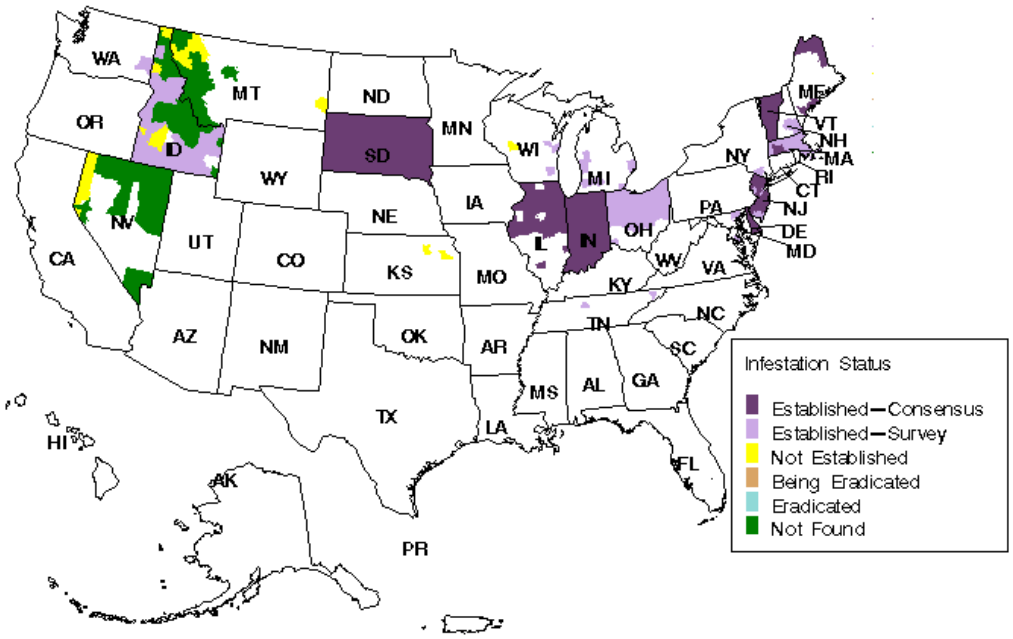
The majority of the areas of concern for EPSM are in the western portion of the state, west of the continental divide. This area is trapped each year for the presence of EPSM. MDA is responsible for exotic moth trapping in high risk counties west of the continental divide. This includes the following counties; FLATHEAD, GRANITE, LAKE, LINCOLN, MISSOULA, MINERAL, POWELL, RAVALLI, and SANDERS. There are several native tortricid species in the genus *Rhyacoinia* that occur in Montana.

Reported Status of

European Pine Shoot Moth(epsm) , Rhyacionia bouliana

in US and Puerto Rico

Data retrieved from National Agricultural Pest Information System on 04/11/2008



The Center for Environmental and Regulatory Information Systems does not certify the accuracy or completeness of the map. Negative data spans over last 3 years only.

2008 MDA EUROPEAN PINE SHOOT MOTH TRAPS BY COUNTY			
# of Traps	County	# of Traps	County
3	POWELL	1	SILVER BOW
7	MISSOULA	5	MINERAL
4	LAKE	11	SANDERS
7	RAVALLI	14	LINCOLN
2	GRANITE	10	FLATHEAD
4	DEER LODGE	3	LAKE
		71	Total

RESULTS: No traps were positive for EPSM in 2008. Several suspect moths were submitted to the USDA-SEL lab for identification, and were determined to be a Tortricidae species.

Locations of EPSM traps placed in Montana by MDA